8. (Amended) The process of claim 7, wherein the particles have a surface area of about 5 to about 10 m^2/g.

9. (Amended) The process of claim 7, wherein the catalytic material comprises Pt.

10. (Amended) The process of claim 7, wherein the fluorocarbon polymer is selected from the group consisting of polytetrafluoroethylene polymers and fluorinated ethylene-propylene polymers.

11. (Amended) The process of claim 7, wherein the catalyst ink further comprises an ionomer.

12. (Amended) The process of claim 11, wherein the ionomer comprises a liquid copolymer of tetrafluoroethylene and perfluorvinylethersulfonic acid.

14. (Amended) The process of claim 13, wherein the substrate is a membrane.

15. (Amended) The process of claim 14, further comprising roughening the surface of the membrane prior to applying the catalyst ink.

16. (Amended) The process of claim 15, wherein the surface is roughened by contacting the membrane with an abrasive selected from the group consisting of silicon nitride, boron nitride, silicon carbide, silica and boron carbide.

17. (Amended) The process of claim 16, wherein the abrasive has a grit size of about 300 to about 400.

19. (Amended) The process of claim 18, further comprising roughening the surface of the membrane prior to applying the catalyst ink.